

Claims

1. An optical recording medium comprising:
a substrate,
a noble-metal oxide layer provided on the substrate,
5 a first dielectric layer provided on a light-incidence plane side when viewed from the noble-metal oxide layer
and a second dielectric layer provided on the side opposite to the light-incidence plane when viewed from the noble-metal oxide layer,
the second dielectric layer containing ZnS or a mixture of ZnS and SiO₂ as a main
10 component, wherein the proportion of ZnS to the sum of ZnS and SiO₂ is set at a value from 60 mole % to 100 mole %.
2. An optical recording medium as described in claim 1, further comprising,
on the side opposite to the light-incidence plane when viewed from the second dielectric
15 layer, a light absorption layer and a third dielectric layer arranged in this order when viewed from the second dielectric layer.
3. An optical recording medium as described in claim 2, further comprising
a reflective layer provided between the substrate and the third dielectric layer.
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4. An optical recording medium as described in any of claims 1 to 3,
wherein the noble-metal oxide layer contains platinum oxide (PtO_x).
5. An optical recording medium as described in any of claims 2 to 4,
25 wherein the light absorption layer contains as a main component a material which can be represented by
$$(\text{Sb}_a\text{Te}_{1-a})_{1-b}\text{MA}_b$$
(wherein MA is an element other than antimony (Sb) and tellurium (Te), $0 < a < 1$ and $0 \leq b < 1$), and besides
30 which is different from an intermetallic compound represented by
$$\{(\text{GeTe})_c(\text{Sb}_2\text{Te}_3)_{1-c}\}_d\text{MB}_{1-d}$$
(wherein MB is an element other than antimony (Sb), tellurium (Te) and germanium (Ge),

c is 1/3, 1/2 or 2/3, and $0 < d \leq 1$).

6. An optical recording medium as described in any of claims 1 to 5, wherein a light-transmitting layer having the light-incidence plane is further provided on the side opposite to the substrate side when viewed from the first dielectric layer, the substrate is from 0.6 mm to 2.0 mm in thickness and the light-transmitting layer is from 10 μm to 200 μm in thickness.

7. A manufacturing method of an optical recording medium, comprising:
a first process of forming on a substrate a reflective layer, a third dielectric layer, a light absorption layer, a second dielectric layer, a noble-metal oxide layer and a first dielectric layer in the order of mention, and
a second process of forming a light-transmitting layer on the first dielectric layer, and by incorporating ZnS or a mixture of ZnS and SiO_2 as a main component in the second dielectric layer, wherein the proportion of ZnS to the sum of ZnS and SiO_2 is set at a value from 60 mole % to 100 mole %.

8. A manufacturing method of an optical recording medium as described in claim 7, wherein the first process is carried out according to a vapor deposition method and the second process is carried out according to a spin coating method.

9. A data recording method in which data is recorded on an optical recording medium as described in any of claims 1 to 6 by irradiation with a laser beam from the light-transmitting layer side,

wherein, when the wavelength of the laser beam is represented as λ and the numerical aperture of an objective lens for focusing the laser beam is represented as NA, λ/NA is set at 640 nm or below and a string of recording marks including recording marks $\lambda/4\text{NA}$ or below in length is recorded.

10. A data reproducing method in which data is played back on an optical recording medium as described in any of claims 1 to 6 by irradiation with a laser beam from the light-transmitting layer side,

wherein, when the wavelength of the laser beam is represented as λ and the numerical aperture of an objective lens for focusing the laser beam is represented as NA, λ/NA is set at 640 nm or below and the data is played back from a string of marks of recording including marks of recording $\lambda/4NA$ or below in length.